

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

# Defense & Arms Control Studies Program

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*Cover: Statue of General Joseph Hooker, Commanding General of the Union Forces in 1863. The statue was commissioned by the Commonwealth of Massachusetts and is located at the Massachusetts State House. Sculptor Daniel Chester French modeled the figure of General Hooker; the horse was modeled by animal statue specialist, Edward Clark Potter. The unveiling ceremony held on June 25, 1904, drew one of the largest public gatherings in Boston to date.*

Photo: Boston Globe

DEFENSE AND ARMS CONTROL STUDIES PROGRAM

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## DEFENSE AND ARMS CONTROL STUDIES PROGRAM

**T**he Defense and Arms Control Studies (DACS) Program is a graduate-level research and educational program based at the MIT Center for International Studies. It traces its origins to two initiatives. One is the teaching on international security topics, and most particularly on defense budgeting, that Professor William Kaufmann began in the 1960s in the MIT Political Science Department. The other is the MIT-wide seminars on nuclear weapons and arms control policy that Professor Jack Ruina and Professor George Rathjens created in the mid 1970s.

The Program's teaching ties are primarily, but not exclusively, with the Political Science Department at MIT. The DACS faculty, however, includes natural scientists and engineers as well as social scientists. Distinguishing the Program is its ability to integrate technical and political analyses in studies of international security issues.

Several of the DACS faculty members have had extensive government experience. They and the other Program faculty advise or comment frequently on current policy problems. But the Program's prime task is educating those young men and women who will be the next generation of scholars and practitioners in international security policy making. The Program's research and public service activities necessarily complement that effort.

The Center for International Studies is a major unit of the School of Humanities and Social Sciences at MIT and seeks to encourage the analysis of issues of continuing public concern. Key components of the Center in addition to DACS are Seminar XXI, which offers training in the analysis of international issues for senior military officers, government officials, and industry executives; and the MIT Japan Program, which conducts research and educational activities to further knowledge about Japanese technology, economic activities, and politics.

## DIRECTOR'S STATEMENT

### OVERVIEW

y colleagues and I are often asked to identify the strategy the United States should adopt now that the Cold War has become a fast fading memory. What guidance can we offer those in government who formulate national policy? For what wars should American forces prepare? How should defense firms think about their futures? Will Russia reemerge soon as a threat to international stability? What about China's growing power? Will we be involved in more Bosnias and Haitis or was our withdrawal from Somalia the start of a trend toward isolationism? How big should the defense budget be and what should be its strategic and technological focus?

We each have cogent answers for all of these questions and occasionally even agree among ourselves. Of course, in providing our answers we often resort to the standard academic hedge — on the one hand this is possible and on the other that. And the record on our ability to predict the future is slightly marred by our collective inability to foresee the happy end of the Cold War, the public's rejection of George Bush so soon after his Gulf War triumph, and the deployment of American ground forces to Bosnia.

What I believe we are especially good at is framing issues, not prescribing policies, when the security future is the subject. Life is full of the unexpected — favorable and trying events that both tempt and test us. How we react to the temptations and challenges should be without surprise. By mapping the options, the frameworks we offer help decision makers avoid the confusion that surprise events often produce.

Barry Posen in several excellent publications has outlined well America's grand strategy options. They are what he calls Primacy, Cooperative Security, Selective Engagement, and Restraint. Among us are articulate advocates for all of these strategies save perhaps Primacy, and even then such advocates are not more than one or two subway stops away. Primacy is a post-Cold War Pax Americana where America makes certain no rival emerges to challenge our power. Cooperative Security is the modern expression of Wilsonianism where America the Good leads coalitions of like-minded nations to protect and expand democracy. Selective Engagement is the strategy where America follows realist principles in choosing when and against whom to do battle. And Restraint is a nice way to say America is quite secure and should stay home rather than to patrol the world as its unelected guardian, underpaid policeman or pushy balancer. Barry describes the policy boundaries and force requirements for each of these strategies.

The rest of the DACS faculty have framing contributions to make as well. Steve Van Evera has examined the efficacy of past U.S. interventions to determine when intervention works best. In his view, interven-



United Nations

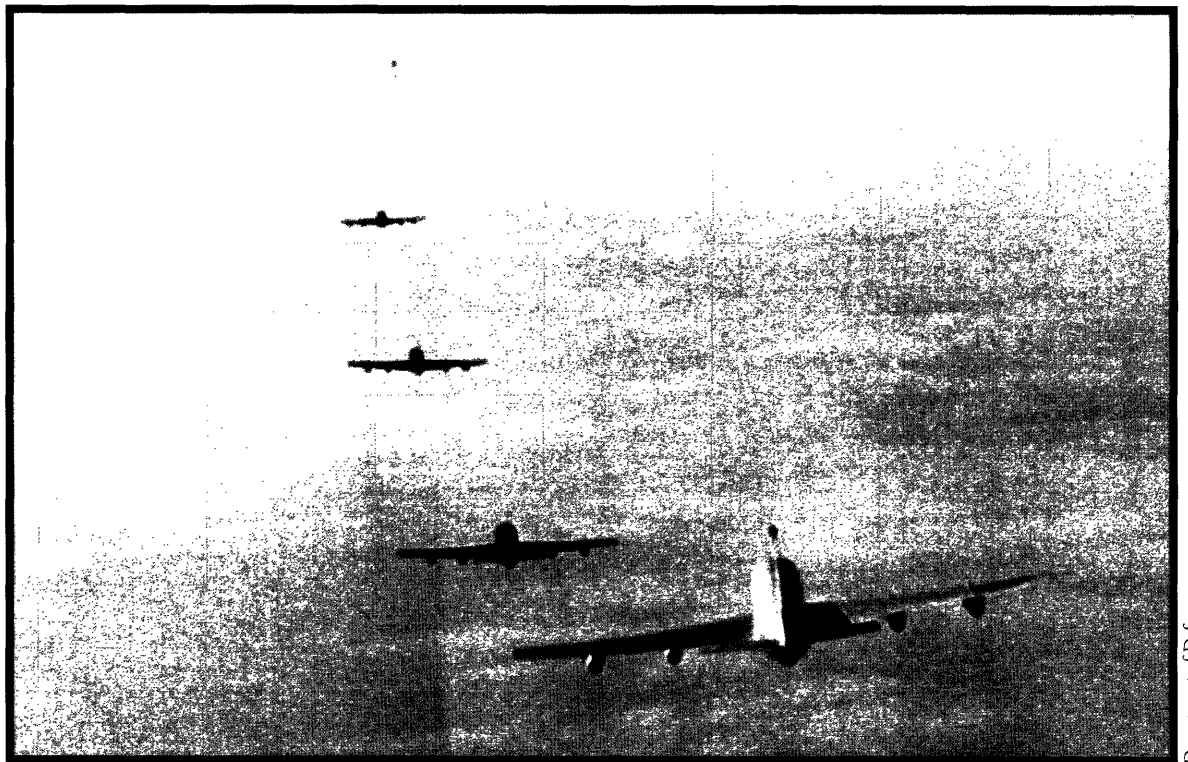
*Ambulances from the British contingent of UNPROFOR drive through Vukovar, Croatia, July 1992.*

tion is always a difficult venture, but the more it leans toward domestic political engineering the less likely it is to succeed. Carl Kaysen and George Rathjens, who have led a very popular DACS Working Group on Post-Cold War policies, have described in some detail the military and political requirements for a standby international intervention force, another option to consider. The hope is that with such a force interventions can occur early enough to stop a crisis from spiraling out of control.

Prevention may be the only reasonable option when it comes to the effort to control the proliferation of weapons of mass destruction. Marvin Miller, a leading nonproliferation expert, has been examining the opportunities for what might be called “deep prevention,” international restrictions on the access to advanced education in sensitive fields by citizens of nations likely seeking weapons of mass destruction capabilities. Here one norm — prevention — bumps into another — open universities and the free exchange of ideas.

When prevention does not work, thought often turns toward defenses. Our Technology Working Group, led by Ted Postol and George Lewis, has been at the forefront in defining the boundaries for effective

DIRECTOR'S  
STATEMENT



Department of Defense

*The aluminum bridge to a post-Cold War strategy.*

defenses, and, most particularly, the boundaries for theater ballistic missile defense. The implications of the development of defensive systems for the ABM Treaty and for U.S. relations with the major nuclear nations, including allies, has also been a focus for the group's work as it has been for Jack Ruina's research and commentary.

The Soviet Union may have collapsed, but some still worry about a resurgent Russia, which would seek first the protection of Russians caught in the outer circle of the old Soviet empire and then settle scores with its former client states and the West. Stephen Meyer, our expert on the Russian military, believes the disruptions that resulted from the collapse make the resurgent scenario a very distant possibility. The greater danger may come from the

leakage out of Russia of nuclear weapons materials and talent, but even here the harms are easier to imagine than to identify.

National strategy in practice is neither exclusive nor fixed. The United States is a big, complex country with a governmental structure that is intentionally divided and conveniently porous to organized interests. Containment was our main strategy toward the Soviet Union during the Cold War, but there was also some mix in the brew of a rollback strategy where we occasionally pressed hard against Soviet borders, and a detente strategy where we hoped to induce a cooperative relationship to develop. The spirit of anti-Communism ebbed and flowed during the long conflict with the Soviet Union. I must confess that I am not sure

what the last 25 years of the Cold War was all about. We did, after all, have a very secure second strike capability by the mid to late 1960s.

The defense budget reflects the implementation of national strategies, but other factors as well.

Obviously, there are regional economic needs to consider in formulating defense budgets. It is also necessary to remember that several politically important industries are heavily dependant upon defense expenditures for their survival. And each of the armed services has powerful incentives to influence the defense budget given that the budget determines their relative opportunities. During the Cold War we had a relatively coherent strategy and big defense budgets. Today we have strategic confusion and big defense budgets. National strategy is only part of the budget equation — and a declining part at that.

Recognizing that budgets are built in large part independently of strategy gives us, I believe, a new way to understand America's post-Cold War options. If one adds to the analysis the debate over new missions for American forces — the debate about the desirability of intervening abroad for humanitarian relief, and/or the expansion of democracy — then one has a basis for a twofold table that would provide guidance for policy makers. In keeping with the great Boston consulting tradition, each box has a silly symbol to make remembering its lesson easier for non-Bostonians.

Like several of my colleagues, I have been absorbed by the effort to understand the military implications of a strategy based on the new missions. There can be no doubt by now that the fear of

casualties dominates our interventions. American troops in Bosnia refer to themselves as the “Prisoners of Peace” and “Ninja Turtles.” They consider themselves to be prisoners of peace because they are restricted to base when not on duty. They are strictly forbidden from mixing with the locals. And they consider themselves to be Ninja Turtles because they must wear body armor when on patrol, back and front ceramic plates carried in battle vests. No one goes anywhere alone. Rather movement is always in large, monitored convoys with armor, artillery, and tactical air support on call. They are so restricted and protected that as one recent study pointed out, they suffer fewer injuries and illnesses than garrison troops back home.

Thus assuming both that we continue to explore new missions and that we keep the defense budget at or near the level it was at the low point of the Cold War, we will focus on force projection, precision strike and nonlethal weapon options. Avoiding casualties — ours, theirs, civilians, opponent military — will be the requirement so as to keep public support for new mission ventures. And this means a concern for ways to do things to hurt only the most obvious of bad guys. A bolt of lightning is a good symbol of this happy state.

But now assume that the money for the Department of Defense starts to dry up, that Medicare and Medicaid are not to be touched and that taxes are not to be raised, yet we continue to pursue the new missions — saving failing nations, and attempting to stop intergroup conflict around the world. In this case we will search harder for substitutes for American troops. Not only will we



**DIRECTOR'S  
STATEMENT**

want to avoid Americans becoming casualties, but we will want to save money also. This means doing more with contractors, replacing as many American support troops and even combat troops with locals, allies or hired guns as possible.

Contracting out may not in fact save much money, but it does give the potential to dispense with pensions, health care and stand-by manning costs. With the budget threatened but things to do, contracting will look attractive. Here I would use the Brown & Root logo as the symbol. Dick

Cheney, recently Secretary of Defense, is the Chief Executive Officer of Brown & Root's parent corporation, and Brown & Root holds the logistics support contract for Haiti and Bosnia.

It is possible, of course, that the budget will stay large, but that new missions will fall from favor. A Haiti, Bosnia or a Rwanda can easily lead into an unpleasant, long-term obligation. Add the prospect of continuing casualties and the political system's tolerance for these ventures will likely

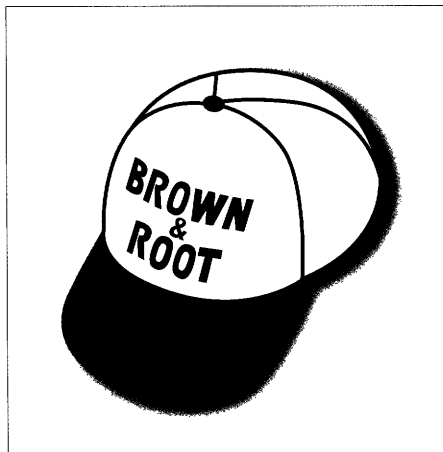
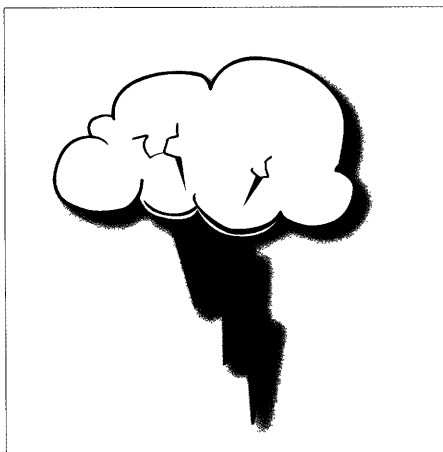
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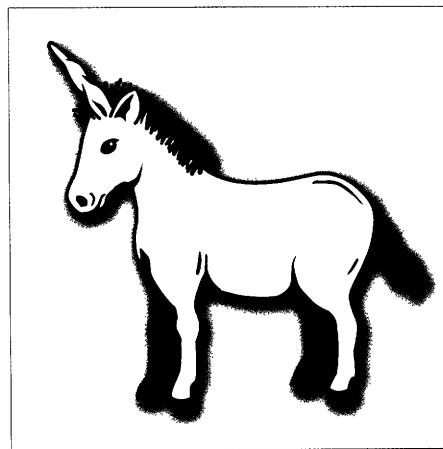
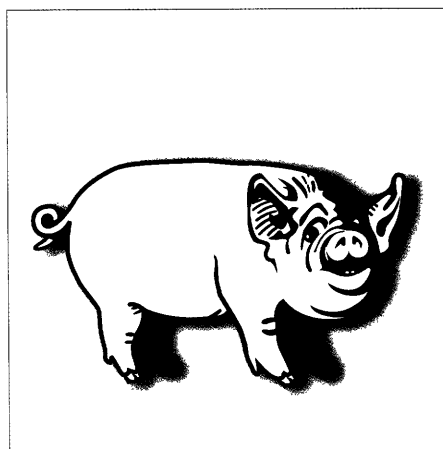
no

**N E W  
M I S S I O N S**

yes



no



fade. Budgets are not necessarily tied tightly to missions. The political interest in preserving jobs, especially contractor jobs, will remain highly independent of experiments with new roles for the military. Shipbuilding and military aircraft production have constituencies outside the armed services and are loosely bound by military purpose. It is not surprising that pork comes to mind for this box.

The final combination is declining budgets and no new missions. Transfer payments — welfare for the poor and the middle class — generate enormous financial requirements especially when the baby boom generation moves to retirement. With no one willing to offer new taxes as the solution, the defense budget cannot stay high for long. Assume both that we tire of new missions and are forced into a very constrained environment for defense spending. Here the strategy for contractors, the military and any other element in the defense business would be to claim uniqueness that they alone offer, the provision of a service or technology absolutely vital for the security of the nation. The unicorn is the obvious symbol for this box. Even with a two percent of GDP or less defense budget, we will maintain our nuclear skills, and the ability to design, if not build, first line ships, aircraft and missiles. Our interest in reconnaissance satellites and other warning systems is not going away. There are some unicorns in the defense herd and this would be a time to claim to be one.

#### **ACTIVITIES AND PERSONNEL**

Looking back on the past can help you to understand the future. During the year we began a series of faculty presentations reflecting upon the Cold

War with the intent of deciphering its political lessons. Steve Van Evera, our resident theorist, talked about the dozen or so articles or books that need to be written on the Cold War, each seeking to answer an important question that he cannot find effectively addressed in the literature. Carl Kaysen, a colleague with a distinguished Cold War as well as academic career, looked back upon the war to understand its causes and structure. And in a day-long symposium at Endicott House that marked George Rathjens' retirement from MIT and his long involvement in the effort to control the arms race, George and a flock of his students, young and not-so-young, reflected on the arms control experience. These were wonderful sessions.

Fortunately retirement at MIT does not mean you have to leave DACS. George Rathjens will stay active in the program just as has Jack Ruina and Carl Kaysen, both of whom retired earlier from teaching. And Marvin Miller, who retired this year as Senior Research Scientist in the Nuclear Engineering Department, moved over to the program where he will base his future research.

This year marked also the renewal of DACS professional educational efforts. In June we organized a week-long set of sessions on security studies as part of the MIT Summer School. I suspect this type of activity will grow again at DACS as we found a significant interest in industry and government research centers both in the United States and abroad in the sessions. But our first obligation remains to our graduate program which attracts outstanding students. We are proud of their work and feature it often in our conferences and publications.

Our military fellows program expanded. This year we had officers from three of the armed services. LTC Robert Durbin, an armor officer was our Army Fellow; Lt. Col. Leo Florick, a missile and arms control specialist, was our Air Force Fellow, and Lt. Comdr. David Radi, an intelligence specialist was our Navy Federal Executive Fellow. I think the military fellows contribute significantly to our program, as they provide the graduate students and faculty with an operational perspective on security issues that would otherwise be lacking.

Working with our Defense Technology Group this year were five visiting fellows: Li Bin, Paul Podvig, Uri Reyhav, Lisbeth Gronlund and David Wright. Li Bin is a researcher at the Program for Science and National Security Studies at the Institute for Applied Physics and Computational Mathematics in Beijing, China. Dr. Li visited DACS on a Social Science Research Council-MacArthur Foundation post-doctoral fellowship. Dr. Paul Podvig, a research associate at the Center for Arms Control, Energy, and the Environment at the Moscow Institute of Physics and Technology, visited DACS for the third time to continue his work on missile defense issues. Uri Reyhav, a missile control expert, has been an analyst at the Center for Military Analyses in Haifa, Israel since 1989. Previously he was chief systems engineer at RAFAEL, the Israeli national defense laboratory. Drs. Lisbeth Gronlund and David Wright are both senior staff scientists in the Cambridge office of the Union of Concerned Scientists as well as research fellows at DACS. They are both physicists whose current research interests include ballistic missile defenses and the control of fissile material.

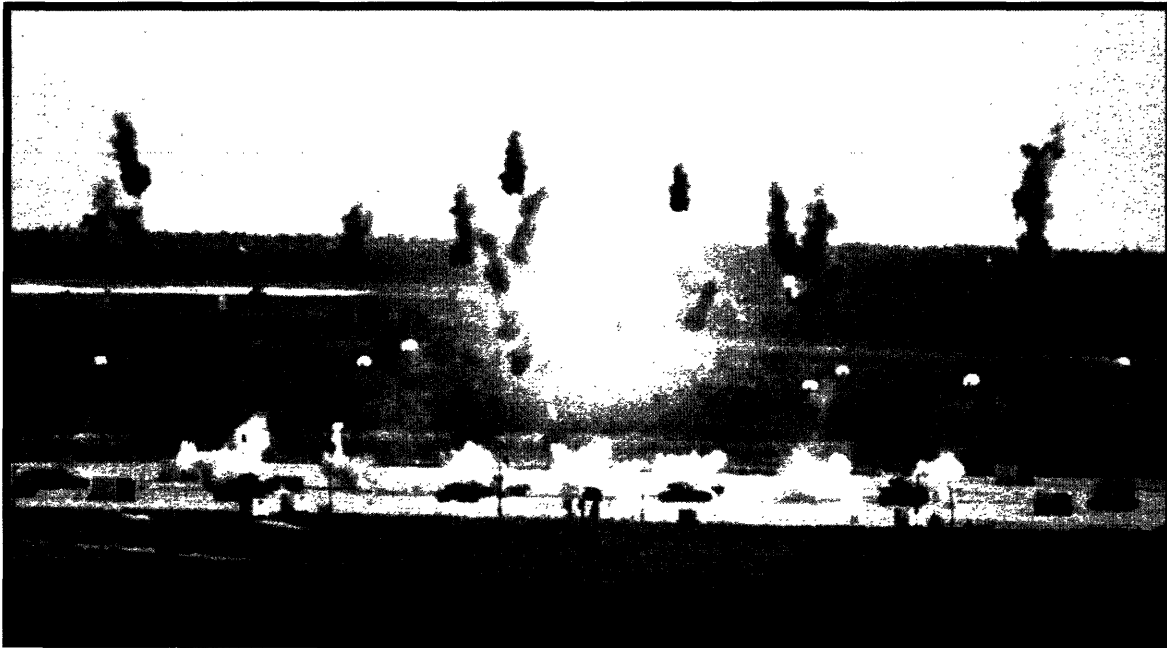
Laura Reed, 1995 MIT PhD, was a Visiting Scientist at DACS during the Fall term, working with George Rathjens and Carl Kaysen on their international intervention project. For the last several years Laura was with the Committee on International Security at the American Academy of Arts and Sciences in Cambridge.

Allen Kaufman, Chair of the Department of Management at the Whittemore School of Business and Economics at the University of New Hampshire, visited this year to work on the history of post-World War II procurement practices with our Future of the Defense Industry Group. Allen received his SM from the MIT Political Science Department and a PhD in History from Rutgers University.

With us for another year was Sanford Weiner who is my frequent collaborator. Sandy was involved in the Defense Environmental Working Group and the Future of the Defense Industry Group where he looked at the politics of large-scale programs and the history of JSTARS.

#### **ACKNOWLEDGEMENTS**

I am pleased to thank three MIT colleagues who were very kind as always to the program and our students: Ken Oye, the Director of our host institute, the MIT Center for International Studies; Richard Samuels, the head of both the Political Science Department where most of our students reside and the MIT Japan Program which cosponsors some of our activities and most especially the Working Group on Asian Security; and Philip Khoury, Dean of the School of Humanities and Social Sciences and a leading expert on Middle



Textron Systems Division

*A Sensor Fused Weapon Test, definitely a bolt of lightning.*

East politics. Several Harvard colleagues also were very helpful to us. Michael Desch and Stephen Rosen of the Olin Institute for Strategic Studies; Owen Cote, Steven Miller, and Michael Brown of the Security Studies Program at the Kennedy School's Center for Science and International Affairs; and General Bernard Trainor (USMC Ret.) the Director of the National Security Fellows Program at the Kennedy School. They all contribute importantly to the intellectual vitality of our community.

As usual I reserve my highest praise for our very tolerant and very helpful benefactors. It is hard to be the benefactor to an organization that has as its motto: Biting the hand that feeds us. The Carnegie Corporation of New York, the Ford Foundation, and the DACS Corporate Consortium including Finmeccanica, Lincoln Laboratory, Lockheed-

Martin Tactical Air Systems, and Newport News Shipbuilding Company are our program supporters. In addition DACS received financial assistance this year for specific projects from the Carnegie Corporation of New York, the Ford Foundation, ICF Kaiser International, the Office of Net Assessment, the American Academy of Arts and Sciences, the Ploughshares Fund, the John D. and Catherine T. MacArthur Foundation, and the W. Alton Jones Foundation. We are most grateful.

Harvey M. Sapolsky

## FACULTY

**HARVEY M. SAPOLSKY** is Professor of Public Policy and Organization in the Department of Political Science and Director of the Defense and Arms Control Studies Program. Dr. Sapolsky completed a BA at Boston University and earned an MPA and PhD at Harvard University. He has worked in a number of public policy areas, notably health, science, and defense and specializes in effects of institutional structures and bureaucratic politics on policy outcomes. In the defense field he has served as a consultant to the Commission on Government Procurement, the Office of the Secretary of Defense, the Naval War College, the Office of Naval Research, the RAND Corporation, Draper Laboratory, and John Hopkins' Applied Physics Laboratory, and has lectured at all of the service academies. He is currently focusing his research on three topics: interservice and civil/military relations; the impact of casualties on U.S. use of force; and the future structure of defense industries. Professor Sapolsky's most recent defense-related book is titled *Science and the Navy*, and is a study of military support of academic research.



Alison Salisbury

**CARL KAYSEN** is David W. Skinner Professor of Political Economy Emeritus in the Program in Science, Technology, and Society and a Senior Lecturer at the MIT Center for International Studies. Dr. Kaysen earned his BA in Economics at the University of Pennsylvania, and his PhD at Harvard University, where he was an economics professor from 1950-1966. From 1966 until 1976, when he came to MIT, he was Director of the Institute for Advanced Study in Princeton and from 1961-1963 he was the Deputy Special Assistant for National Security Affairs to President Kennedy. He has served as a consultant to RAND, the Defense Department, and the CIA. Chairman of the Committee on Security Studies of the American Academy of Arts and Sciences, Dr. Kaysen is currently engaged in organizing a project under the Committee's auspices on emerging norms of justified international intervention.

**GEORGE N. LEWIS** is Assistant director of DACS. He spent five years as a research associate in Cornell University's Department of Applied Physics after receiving his PhD in experimental solid state physics there in 1983. Prior to coming to MIT in 1989 he was a fellow in the Peace Studies Program at Cornell and at the Center for International Security and Arms Control at Stanford. His research has included studies of arms control and verification for sea-launched cruise missiles and other non-strategic nuclear weapons, air surveillance and early warning systems, and the effectiveness of tactical missiles and of defenses against such missiles (with an emphasis on the performance of Patriot in the 1991 Gulf War). Dr. Lewis is now conducting research on a number of issues relevant to ballistic missile defense.

**STEPHEN M. MEYER** is Professor of Defense and Arms Control Studies and Director of Post-Soviet Security Studies at MIT. Prior to joining the MIT faculty in 1979, he was a post-doctoral fellow at Harvard University's Center for Science and International Affairs. He received his PhD at the University of Michigan, Ann Arbor in 1978. Dr. Meyer's areas of particular interest are defense decision-making, military economics, force planning and analysis, and arms control in the former Soviet Union. His current work examines the rise and fall of Soviet military power and the ways in which domestic organizations and institutions influenced Soviet defense policy. Dr. Meyer serves as an advisor on Post-Soviet security affairs to several U.S. government agencies and has testified numerous times in open and closed hearings before the House Armed Services Committee, the Senate Armed Services Committee, the Senate Foreign Relations Committee and the Senate Select Committee on Intelligence.

**MARVIN M. MILLER** recently retired from the position of Senior Research Scientist in the Department of Nuclear Engineering at MIT. He is now a Research Affiliate at the MIT Center for International Studies and the Department of Nuclear Engineering. After undergraduate work at the City College of New York, he received an MA in Physics from the University of Rochester and a PhD in Electrical Engineering from the Polytechnic Institute of New York. Prior to joining MIT in 1976, Dr. Miller was an associate professor of electrical engineering at Purdue University conducting research on laser theory and applications. At MIT his research has focused on arms control, particularly nuclear proliferation, and the environmental impacts of energy use. In the proliferation area, his major interests are the Middle East and South Asia; he has also worked on such issues as international safeguards and export controls on sensitive nuclear technologies, the disposition of plutonium from retired nuclear weapons, and the proliferation implications of foreign nationals studying at U.S. universities. From 1984 to 1986, Dr. Miller was a Foster Fellow with the Nuclear Weapons and Control Bureau of the U.S. Arms Control and Disarmament Agency (ACDA), and is currently a consultant on proliferation issues for ACDA and the Lawrence Livermore National Laboratory.

**BARRY R. POSEN** is Professor of Political Science at the Massachusetts Institute of Technology and one of the co-directors of Seminar XXI, an educational program for senior military officers, government officials and business executives in the national security policy community. He has written two books, *Inadvertent Escalation: Conventional War and Nuclear Risks* and *The Sources of Military Doctrine*, which won two awards: The American Political Science Association's Woodrow Wilson Foundation Book Award, and Ohio State University's Edward J. Furniss Jr. Book Award. Prior to coming to MIT, he taught at Princeton University,

and has also been Guest Scholar at the Brookings Institution; Post-Doctoral Fellow at the Center for International Affairs at Harvard; Council on Foreign Relations International Affairs Fellow; Rockefeller Foundation International Affairs Fellow and Guest Scholar at the Center for Strategic and International Studies; and Woodrow Wilson Center Fellow, Smithsonian Institution. Dr. Posen's current research includes work on U.S. military strategy and force structure, regional military competitions, and nationalism.



Sharon Weiner

Barry Posen, left



George Lewis

**THEODORE A. POSTOL** is Professor of Science, Technology and National Security Policy in the Program in Science, Technology, and Society at MIT. He did his undergraduate work in Physics and his graduate work in Nuclear Engineering at the Massachusetts Institute of Technology. After receiving his PhD, Dr. Postol joined the staff of Argonne National Laboratory, where he studied the microscopic dynamics and structure of liquids and disordered solids using neutron, x-ray and light scattering, along with computer molecular dynamics techniques. Subsequently he went to the Congressional Office of Technology Assessment to study methods of basing the MX Missile, and later worked as a scientific adviser to the Chief of Naval Operations. After leaving the Pentagon, Dr. Postol helped to build a program at Stanford University to train mid-career scientists to study developments in weapons technology of relevance to defense and arms control policy. In 1990 Dr. Postol was awarded the Leo Szilard Prize from the American Physical Society. In 1995, he received the Hilliard Roderick Prize from the American Association for the Advancement of Science.

**GEORGE W. RATHJENS** became Professor in the Department of Political Science after service with the Institute for Defense Analyses, the U.S. Arms Control and Disarmament Agency, the Advanced Research Projects Agency of the Department of Defense, the Office of the President's Science Advisor, and the Weapons Evaluation Group of the Department of Defense. He has also served in the Department of State. Dr. Rathjens received his BS from Yale University and completed his PhD in chemistry at the University of California at Berkeley. He is active in a number of associations, including the Council for a Livable World, of which he has been Chairman, and the Federation of American Scientists, of which he is Sponsor, Councilor, and Past Chairman. Dr. Rathjens' major policy interests are nuclear arms issues, environmental problems, with special emphasis on conflict and the environment, and post-Cold War international security questions, including particularly problems of intervention in instances of ethnic and intrastate conflict.

**JACK RUINA** is Professor of Electrical Engineering Emeritus. Dr. Ruina was an undergraduate at the City College of New York and did his graduate work at the Polytechnic Institute of Brooklyn, earning his MEE and DEE there. He has been granted the Outstanding Alumnus Award from both colleges. He taught at Brown University and the University of Illinois; at the latter he also headed the Radar Division of the Control System Laboratory. While on leave from the University of Illinois, he served in several senior positions at the

Department of Defense, the last being Director of the Advanced Research Projects Agency and was honored with the Fleming Award for being one of ten outstanding young men in government in 1962. He served on many government committees including a presidential appointment to the General Advisory Committee, 1969-1977, and acted as Senior Consultant to the White House Office of Science and Technology Policy, 1977-1980. He also held the post of President of the Institute for Defense Analyses. At MIT, he has held the position of Vice President for Special Laboratories and was Secretary of the MIT Faculty. Dr. Ruina is currently Vice Chairman of the Board of Trustees for MITRE Corporation. He was instrumental in establishing the Defense and Arms Control Program and was its first Director. Dr. Ruina's special interest is in strategic weapons policy.



**STEPHEN VAN EVERA** earned his BA in government from Harvard and his MA and PhD in political science from the University of California at Berkeley. Dr. Van Evera works in several areas of international relations: the causes and prevention of war, U.S. national security policy, U.S. foreign policy, U.S. intervention in the Third World, international relations of the Middle East, and international relations theory. He has published on the causes of war, American foreign policy, American defense policy, and has a book forthcoming on the causes and prevention of war. From 1984-1987 he was managing editor of the journal *International Security*. He has taught international relations at Princeton, Tufts, and the University of California at Davis, as well as MIT. Dr. Van Evera has also held research fellowships at the Woodrow Wilson Center in their National Security Studies Program, and at the Harvard Center for Science and International Affairs.



## DACS WORKING GROUPS

**T**he nine working groups of the MIT Defense and Arms Control Studies Program bring together, usually on a weekly basis, faculty and students interested in examining a topic through individual and collaborative projects. Group sessions include research reviews, thesis presentations, guest speakers, and research design efforts. All groups report on their progress at DACS symposia.

### **ASIAN SECURITY AND ENERGY ISSUES**

**Richard Samuels**

*Working Group Leader*

### **CONVENTIONAL FORCES**

**Barry Posen**

*Working Group Leader*

### **DEFENSE/ENVIRONMENTAL PROBLEMS**

**Harvey Sapolsky & Stephen Meyer**

*Working Group Leaders*

### **DEFENSE POLITICS**

**Harvey Sapolsky**

*Working Group Leader*

### **FUTURE OF THE DEFENSE INDUSTRIES**

**Harvey Sapolsky**

*Working Group Leader*

### **NEW DIRECTIONS IN SECURITY POLICY**

**George Rathjens & Carl Kaysen**

*Working Group Leaders*

### **NON-PROLIFERATION STUDIES**

**Marvin Miller**

*Working Group Leader*

### **POST SOVIET SECURITY STUDIES**

**Stephen Meyer**

*Working Group Leader*

### **TECHNICAL STUDIES IN DEFENSE AND ARMS CONTROL POLICY**

**Ted Postol**

*Working Group Leader*



Boston Globe

*President Clinton giving away the store at Bath Iron Works Shipyard in Maine.*

## DACS SEMINARS SERIES

The DACS seminar series provides a forum for discussing current security topics and the varying disciplinary perspectives on security studies. They also provide an opportunity for scientifically knowledgeable individuals to join with DACS members in examining technical topics of current policy relevance. The sessions are open to the wider MIT and Boston area communities. Each is followed by a reception which allows graduate students and faculty members to meet informally with the speakers.

### FALL 1995

September 6  
**Missile Proliferation Concerns in South Asia:  
US Perceptions and Their Impact**  
Samir Sen  
*Air Vice Marshall, Indian Air Force (ret.)*

September 13  
**Learning Lessons in Rafael from the War in  
Lebanon, 1982**  
Uri Reychav  
*Analyst, Center for Military Analyses, Haifa Israel*

September 20  
**Dismantlement of Nuclear Weapons  
in the Former Soviet Union:  
What is going right...and wrong**  
Tom Cochran  
*Natural Resources Defense Council*

September 27  
**Ongoing Monitoring and Verification  
in Iraq: Problems and Prospects**  
Tim Trevin  
*United Nations Special Commission on Iraq*

October 11  
**The US Role in NATO**  
Kathleen DeLaski  
*Department of Defense*

October 18  
**Targeting in the Gulf War**  
Colonel Richard Lewis  
*United States Air Force*

October 25  
**A Concise History of Satellite Navigation**  
Bradford Parkinson  
*Stanford University*

November 1  
**The Invention of the Enlisted Man in Modern  
Navies: Tradition & Innovation**  
Ronald Spector  
*George Washington University*

November 8  
**Nuclear Non-Proliferation: A Look Ahead**  
Larry Scheinman  
*Assistant Director, US Arms Control & Disarmament  
Agency*

November 15  
**Epitaph for Peacekeeping**  
William Durch  
*Senior Associate, Henry L. Stimson Center*

November 20  
**New Trends in the Persian Gulf**  
Gary Sick  
*Columbia University*

November 29  
**How Serious is the Biological Weapons  
Threat?**  
Matthew Meselson  
*Professor of Biology, Harvard University*

SPRING 1996

February 14

**New Outline of Israel's Security Policy**

Efraim Inbar

*Professor, Begin-Sadat Center for Strategic Studies,  
Bar-Ilan University, Israel*

February 28

**The Army's Helicopter Program**

Frances Lussier

*Congressional Budget Office*

April 3

**Casualties and Domestic Support for U.S.  
Military Options: Implications for Bosnia**

Eric Larson

*Fellow, RAND Corporation*

April 17

**Asian Security Issues**

Ezra Vogel

*Professor of Sociology, Harvard University*

May 1

**An Overview of Recent Senate Hearings  
on the Proliferation of Weapons  
of Mass Destruction**

John Sopko

*Deputy Chief Council to Senator Sam Nunn, Senate  
Permanent Subcommittee on Investigations*

May 8

**Cooperative Threat Reduction**

Major General Roland Lajoie, USA (Ret.)

*Office of the Secretary of Defense*

May 9

**Dispute Negotiations**

Larry Susskind

*Professor of Urban & Environmental Planning, MIT*

May 15

**The Future of the Defense Industries**

Harvey Sapolsky

*Professor of Public Policy and Organization, MIT*

**THE FUTURE OF WAR  
SEMINARS**

Offered in conjunction with the Olin Institute for  
Strategic Studies at Harvard and the Kennedy  
School's Center for Science and International Affairs.

DACS  
SEMINARS  
SERIES

October 12

**Post-Cold War U.S. Grand Strategy:  
Isolationism, Unilateralism, or  
Internationalism?**

Stephen Rosen, *Acting Director, Olin Institute*

Harvey Sapolsky, *Director, MIT DACS Program*

Bryan Hehir, *Harvard Divinity School*

Moderator: Michael Desch

*Assistant Director, Olin Institute*

November 16

**A Soldiers' View of the Future of War**

Lieutenant General Leonard D. Holder

*Commanding General, USA Combined Arms Center*

December 7

**The Next War**

Stephen Van Evera

*MIT Political Science Department and DACS Program*

February 15

**Military, the Media, and Operations  
Other Than War**

Tom Ricks

*Defense Correspondent for the Wall Street Journal*

March 14

**Information Warfare: What's New and  
What's Not**

Anthony Oettinger

*Professor and Chairman of Harvard University's Program  
on Information Resources Policy*

## SPECIAL SEMINARS

October 19

### **A Concept for the Future U.S. Warship Fleet**

Reuven Leopold

*President, SYNTEK Technologies and a member of the  
CNO Executive Panel*

(co-sponsored with the MIT Department of  
Ocean Engineering)

October 23

### **Scientific Stewardship Program**

Victor Reiss

*Assistant Secretary, Defense Program,  
Department of Energy*

October 24

### **Japan's New Nationalism**

Chikako Ueki

*DACS PhD Candidate,  
MIT Department of Political Science*

(sponsored by the MIT Japan Program)

November 16

### **Peacekeeping: One Operator's Point of View**

Colonel Russ Howard

*Commander, 1st Special Forces Group (Airborne)*

March 15

### **The Future of the European Defense Industry**

Ellis Mishulovich

*Graduate Student, Yale University*

March 19

### **The Future of the Russian Aerospace Industry**

Judyth Twigg

*Professor and Director of International Studies at  
Virginia Commonwealth University*

April 5

### **Lessons of the Cold War**

Stephen Van Evera

*Associate Professor of Political Science, MIT*

April 15

### **Current Developments Affecting NATO**

Ambassador Robert Hunter

*U.S. Ambassador to NATO*

May 6

### **Post-Cold War Peace Operations: Lessons From Operation Provide Comfort**

Colonel Larry Forester

*Commander of the ground element in northern Iraq and  
soon-to-be Director of the U.S. Army Peacekeeping  
Institute at the Army War College*

May 14

### **Reflections on the Cold War**

Carl Kaysen

*David W. Skinner Professor of Political Economy  
Emeritus, in the Program in Science, Technology and  
Society, and Senior Lecturer at the MIT Center for  
International Studies*

## SELECTED PUBLICATIONS

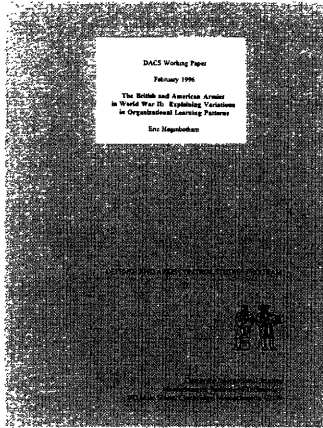
- Li Bin, "The Effects of Ballistic Missile Defenses on Chinese Attitudes Towards Arms Control," SSRC-MacArthur Newsletter, May, 1995.
- Lisbeth Gronlund, David Wright and Yong Liu, "China and a Fissile Material Production Cut-Off," *Survival*, VOL. 37 NO. 4, Winter 1995-96.
- Lisbeth Gronlund, George Lewis, Theodore Postol, and David Wright, "The Weakest Line of Defense: Intercepting Ballistic Missiles," in Joseph Cirincione and Frank von Hippel, eds., *The Last Fifteen Minutes: Ballistic Missile Defense in Perspective* (Washington D.C.: Coalition to Reduce Nuclear Dangers, May 1996).
- Lisbeth Gronlund and David Wright, "Threat Assessment: Third World Missiles," in Joseph Cirincione and Frank von Hippel, eds., *The Last Fifteen Minutes: Ballistic Missiles Defense in Perspective* (Washington D.C.: Coalition to Reduce Nuclear Dangers, May 1996).
- Carl Kaysen and George Rathjens with the Committee on International Security Studies, "Peace Operations by the United Nations: The Case for a Volunteer U.N. Military Force," Occasional Paper series of the American Academy of Arts and Sciences (April/May, 1995).
- Peter Liberman, *Does Conquest Pay? The Exploitation of Occupied Industrial Societies*, Princeton Studies in International History and Politics (Princeton: Princeton University Press, 1996).
- Dan Lindley, book review of George Downs, ed., *Collective Security Beyond the Cold War*, in *Political Science Quarterly*, VOL. 110 NO. 3, Summer 1995.
- Marvin Miller contributed a chapter on Verification Arrangements to a report for the Canberra Commission for the Elimination of Nuclear Weapons in January.
- Marvin Miller contributed a chapter on Israel to the book, *Nuclear Weapons After the Comprehensive Test Ban*, edited by Eric Arnett, Oxford University Press, 1996.
- Reuven Pedatzur, "The Israeli Perspective (on Nuclear Weapons in the Middle East)," in *The International Network of Engineers and Scientists Against Proliferation's (INESAP) Information Bulletin* (October 1995).
- Barry Posen, "Military Responses to Refugee Disasters," *International Security*, VOL. 21 NO. 1, Summer 1996.
- Barry Posen, "Developing a National Strategy in an Era of 'Invitational Crises'," *The Chronicle of Higher Education*, January 19, 1996.
- Barry Posen, "Nationalism, the Mass Army and Military Power", reprinted in *Perspectives on Nationalism and War*, edited by John L. Comaroff and Paul C. Stern, (Overseas Publishers Association, 1995).
- Ted Postol, "Vulnerabilities of the Theater High Altitude Defense System to Third World Country Countermeasures," in preparation for *Science and Global Security*, Princeton University.

## PROGRAM AFFILIATES

- Ted Postol and George Lewis, "The Implications of Ballistic Missile Defenses for Future Deep Reductions of Nuclear Arms," in preparation for book on "The Prospects for Deep Reductions in Nuclear Weapons," Edited by Frank von Hippel and Bruce Blaire, project in association with The Brookings Institution, Washington, DC.
- George Rathjens, "Nuclear Proliferation Following the NPT Extension," in "The Nuclear Non-Proliferation Regime: Prospects for the Next Century," to be published by Macmillan in UK and St. Martin's Press for the U.S., edited by Raju Thomas.
- George Rathjens, "Criteria and Requirements for Military Intervention in Intrastate Ethnic Conflict," in "Racism, Xenophobia and Ethnic Conflicts," to be published by Indicator Press, Simon Bekker and David Carlton, editors.
- Jack Ruina, "Threats to the ABM Treaty," *Security Dialogue*, VOL. 26 NO. 3, September, 1995.
- Jack Ruina, "Attempts to Ban Nuclear Tests - A Disappointing Story," *Monitoring a Comprehensive Test Ban Treaty*, conference proceedings of the NATO advanced Study Institute on Monitoring a Comprehensive Test Ban Treaty, January 31-February 1, 1996.
- Harvey M. Sapolsky and Jeremy Shapiro, "Casualties, Technology and America's Future Wars," *Parameters*, Summer 1996.
- Harvey M. Sapolsky and Eugene Gholz, "Private Arsenals: America's Post Cold War Burden," prepared for the Council on Foreign Relations study group on "Consolidation, Downsizing, and Conversion in the U.S. Military Industrial Base," March 1996.
- Harvey M. Sapolsky, "The Truly Endless Frontier," *Technology Review*, November/December 1995.
- Harvey M. Sapolsky, "Trading Places: American and European Defense Industries After the Cold War," New York Academy of Science Conference Proceedings, June 1995.
- Harvey Sapolsky and Eugene Gholz, "Political Market Structure Constraints on Post-Cold War Acquisition Reform," prepared for the 1995 Acquisition Research Symposium, Defense Systems Management College, June, 1995.
- Stephen Van Evera, co-authored with John Mearsheimer, "When Peace Means War: The Partition That Dare Not Speak Its Name," *The New Republic*, December 18, 1995.

# DACS PROGRAM PUBLICATIONS, 1995/1996

## WORKING PAPERS / CONFERENCE REPORTS









Eric Heginbotham, "The British and American Armies in World War II: Explaining Variations in Organizational Learning Patterns," DACS Working Paper No. 96-2, February 1996.

Taylor Seybolt, "Whither Humanitarian Intervention? Indications from Rwanda"

Daryl G. Press, "Strategic Airpower in Desert Storm and Beyond: A Symposium Summary"

Faculty Spotlight: Ted Postol

## BREAKTHROUGHS Research Journal

<b>BREAKTHROUGHS</b>	
SPRING 1996 VOL. V, NO. I	
 The Interservice Competition Solution <i>Harvey M. Sapolsky</i>	1
 Searching for that "Vision Thing": America's Foreign Policy Choices <i>Harvey M. Sapolsky</i>	4
 The ABM Treaty and the Future of Arms Control and Non-Proliferation <i>George Lewis</i>	11
 Whither Humanitarian Intervention? Indications from Rwanda <i>Taylor Seybolt</i>	19
 Strategic Airpower in Desert Storm and Beyond: A Symposium Summary <i>Daryl G. Press</i>	27
 Faculty Profile <i>Ted Postol</i>	34

Also in This Issue:  
Poem on Military Life/Verse

**MITDACS** Defense and Arms Control Studies Program of the  
Massachusetts Institute of Technology, Cambridge, MA

Richard M. Wilcox, "Force Projection and Sustainment," summary of a conference of the same title held on March 23/24, 1995, at the Sheraton Commander Hotel, Cambridge, MA.

## DACS SEMINAR NOTES

Summaries of the DACS Seminar Series presentations.

## DACS FACTS

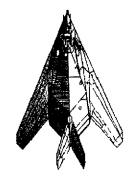
DACS Newsletter produced eight months per year.

## The Newsletter of the MIT Defense and Arms Control Studies Program **DACS FACTS**

### The Changing Sociology of the Military

The gap between the military and civilian is becoming more pronounced. This article, the first in a series of DACS sponsored seminars on the sociology of the military, argued that a culture gap has formed between the military and the civilian world. The gap is widening and is likely to become even wider in the future.

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Stephen M. Meyer, "The Devolution of Russian Military Power," DACS Working Paper NO. 95-4, November 1995.

VOL. V, NO. I SPRING 1996:

Harvey M. Sapolsky, "The Interservice Competition Solution"

Daryl G. Press and Eugene Gholz, "Searching for that 'Vision Thing': America's Foreign Policy Choices"

Allen Kaufman, "In the Procurement Officer We Trust: Constitutional Norms, Air Force Procurement and Industrial Organization, 1938-1948," DACS Working Paper NO. 96-1, January 1996.

George Lewis, "The ABM Treaty and the Future of Arms Control and Non-Proliferation"



## CONFERENCES AND SYMPOSIA

### **The Changing Sociology of the Military**

*February 14, 1996 — MIT*

The gap between the military and civilians in American society is growing, Tom Ricks, the first speaker in the DACS sponsored seminar on the sociology of the military, argued. Ricks, a defense reporter for the *Wall Street Journal*, led off the February 14 session with a list of factors that are separating the military from civilians: the end of the draft, the professionalization of the military, and new missions that make the military value internal order over societal chaos.

Major Dana Isaacoff, currently a fellow at Cornell and a PhD candidate in political science at MIT and recently a faculty member at West Point, followed with an analysis of officer corps values which she described as being conservative, masculine, heterosexual, white and Christian despite the integration of Blacks, expanded opportunities for women, and a liberal society.

Will this pattern of values, particularly the conservatism hold, asked Professor Barry Posen, DACS faculty member and the next seminar speaker. He thought four factors could liberalize the military: (1) the revolution in military affairs which, hyped or not, underlines the growing technological focus of the military, which should make individual competence the most highly valued human attribute in the organization; (2) new missions which have the military rub shoulders with NGOs, third world populations and UN officials and peacekeeping troops; (3) spouses who live and work in the civilian world and; (4) the likely end of military socialism, the expensive network of PXs, golf courses, and dedicated medical facilities that isolate the military from the real world.

Just back from observing a peacekeeping rotation at the Joint Readiness Training Center at Ft. Polk, Laura Miller, a post doctoral fellow at the Olin Institute seemed to agree with the Posen assessment. Miller argued that the military had a lot to do in order to adjust to its new post-Cold War missions and that the pull was toward caution if not liberalism.

The chair of the session, Professor Harvey Sapolsky, was his usual skeptical, sardonic self. Sure the new police-like missions were forcing the military to meet new people, but would the encounters make the military more liberal? "Are the police in the United States liberals?" he wondered. As for the description of military socialism (the PXs and the like) as a waste of money, he referred the audience to the federal budget and any standard study of public policy. Wasting of money in various ways forms the core of domestic policy and has been successfully defended before. Finally, he had little sympathy for the plight of the lonely liberal in the military. Try being a conservative at a major U.S. university, he suggested. Intolerance works both ways.

The discussion was quite lively, and often focused on the problem facing the current MIT Task Force on ROTC, and the role of gays and lesbians in the military. Several task force members were present and probed for analogies to the integration of blacks and the expanding role of women in the armed forces.



U.S. Navy

*USS Abraham Lincoln (CVN-72) on its 1990 circumnavigation of South America.*

### **3rd Annual James H. Doolittle Workshop & Dinner**

*April 24, 1996 — MIT Faculty Club*

The 1996 General James H. Doolittle Airpower Symposium held on April 24 at the MIT Faculty Club had the future of naval aviation as its theme and attracted about 80 attendees including faculty, fellows, industry representatives, naval officers and graduate students. VADM John Mazach, Commander, Naval Air Force, U.S. Atlantic Fleet, was the featured dinner speaker at the event which was cosponsored by DACS, the Olin Institute, and CSIA at the Kennedy School.

Two panels, one covering current capabilities of naval aviation and the other its future directions, formed the main part of the program. At the luncheon there were two important briefings on the future Joint Strike Fighter by RADM Craig Stiedle, head of the JAST Program, and one on the Navy's carrier study by Capt. T.L. Webb. Among the participants were DACS or MIT graduates including Chris Wright who is head of TAC AIR programs in Program Analysis and Evaluation in OSD and Owen Cote of the Kennedy School.

The session debated the political and military value of naval aviation, the risks of joint service development of aircraft, the uncertainties of the weapon procurement process given the end of the Cold War, and utility of cruise missiles as a substitute for aircraft.

### **Weapons & Politics: Applying the Lessons of the Past?**

*May 3, 1996 — MIT Endicott House*

On Friday, May 3, 1996, a group of colleagues, current and former students, friends and family of George Rathjens gathered to wish him well on his retirement. The day-long event held at MIT's Endicott House was planned by DACS Professor Marvin Miller, and current DACS graduate students Jane Kellett Cramer, Taylor Seybolt, and Jim Walsh. A significant aspect of George's presence at MIT has been his mentoring of a large number of graduate students in their thesis work. For this reason, the organizers felt it appropriate to arrange the symposium around three panels whose members were some of his former thesis students. McGeorge Bundy, of the Carnegie Corporation, gave an appraisal of George's work which was followed by a dinner at which Jack Ruina served as Master of Ceremonies.

## TEACHING AT DACS

**T**he Program's courses—what MIT prefers to call subjects—are open to all students eligible to attend classes at MIT, including cross-enrollers from Harvard and Wellesley. Most of the subjects are offered at the graduate level and through the Political Science Department.

Political Science doctoral candidates may use Defense and Arms Control Studies as one of their fields of concentration. Within that context, defense and arms control studies has two principal objectives: first, it introduces the student to the study of American defense policy, including the policy process, arms control, force structure, and military budgets. Second, it introduces the student to the study of the role of force in international politics and how countries have historically pursued their security interests. Students are expected to develop competence in the methods of systems analysis, technology assessment, and strategic reasoning that shape the size and composition of U.S. strategic nuclear and general purpose forces. The international military competition, the prospects for arms control and their implications for U.S. force planning receive special consideration in several subjects. Others examine some of the same issues by contrasting U.S. experiences and approaches with those of rivals and allies.

Students who plan to offer Defense and Arms Control Studies for the general examination take two subjects from those listed below in the Forces and Force Analysis section, and one subject each from the listing in the Defense Politics and in the Comparative Defense Policy sections. Competence in technical analysis is required. A background in economics to intermediate level with particular emphasis on macroeconomics and public finance is advisable. The subjects in the Forces and Force Analysis section will provide sufficient review of the technical approaches to be examined.

The write-off requirement is three subjects with equal distribution among the three sections preferred although approval for alternative distributions may be granted in consultation with field faculty. A number of substantive fields in the Political Science Department deal with important determinants of U.S. defense programs and expenditures. Among the most closely related are: Science, Technology and Public Policy; American Politics; International Relations and Foreign Policy; and Soviet Studies. Students of defense policy are also encouraged to take subjects in economics.

**FORCES AND FORCE ANALYSIS****17.476 Analysis of Strategic Nuclear Forces** (Postol) [G]

STS.516

Introduces the assessment of strategic nuclear forces. Emphasizes the development of force requirements and methods of analyzing alternative force postures in terms of missions, effectiveness, and cost. The history of U.S.-Soviet strategic competition provides the backdrop against which the evolution of nuclear strategy and forces is considered.

**17.477 Technology and Policy of Weapons Systems** (Postol) [U]

STS.076

Examines in detail the technology of nuclear weapons systems. Topics include nuclear weapons design, effects, targeting, and delivery; ballistic and air breathing missile propulsion and guidance; communications and early warning techniques and systems; and anti-missile, air, and submarine systems. Combines the discussion of technical materials with the national security policy issues raised by the capabilities of these technologies. Considers security issues from the distinct and often conflicting perspectives of technologists, military planners, and political leaders.

**17.482/483 U.S. General-Purpose Forces** (Posen/Postol) [U/G]

Based on the concept of Grand Strategy as a system of inter-connected political and military means and ends. Topics covered include U.S. grand strategy, the organization of the U.S. military, the defense budget, ground forces, tactical air forces, naval forces, power projection forces, and the control of escalation. Particular episodes of military history that offer insights into current conventional forces issues are examined. Graduate students are expected to pursue the subject at greater depth through reading and individual research.

**17.479 / 480 Technology, Politics, and Weapons Choice** (Postol) [U/G]

STS.519

Analyzes decisions to develop or acquire new weapons systems that had, or could have had, a major influence on the arms race. Examines the interplay of political and technical factors in the decision-making process. Representative weapons systems include the hydrogen bomb, the nuclear-powered submarine, tactical nuclear weapons, the Polaris submarine-launched ballistic missile, the B-1 bomber, MIRVs, the Moscow anti-ballistic defense, the U.S. Safeguard/Sentinel missile defense, and others. Graduate students are expected to pursue the subject at greater depth through reading and individual research.

**AMERICAN DEFENSE POLITICS****17.460 Defense Politics** (Sapolsky) [G]

Examines the politics affecting U.S. defense policies. Includes consideration of intra- and inter-service rivalries, civil-military relations, contractor influences, congressional oversight, peace movements in historical and contemporary perspectives, and U.S. defense politics before, during, and after the Cold War.

**17.471 American National Security Policy** (Meyer) [U]

Introduces the student to the problems and issues confronting American national security and the process by which American national security policy is formulated. The nature of the international system (post-World War II), the theoretical requirements for deterrence and defense, and alternative strategies for implementing American national security policy are discussed. The roles of the President, National Security Council, Department of Defense and armed services, the Congress, and public opinion in formulating national security policy are examined.

**17.428 American Foreign Policy: Theory and Method** (Van Evera) [G]

Examines the causes and consequences of American foreign policy since 1898. Readings cover theories of American foreign policy, historiography of American foreign policy, central historical episodes including the two World Wars and the Cold War, case study methodology, and historical investigative methods. Open to undergraduates by permission of instructor.

**COMPARATIVE DEFENSE POLICY**

**17.432 Causes of War: Theory and Method** (Van Evera) [G]

Examines the causes of war. Major theories of war are examined; case-study and large-n methods of testing theories of war are discussed; and the case-study method is applied to several historical cases. Cases covered include World Wars I and II. Open to undergraduates only by permission of instructor..

**17.462 Innovation in Military Organizations** (Posen and Sapolsky) [G]

Explores the origins, rate, and impact of innovations in military organizations, doctrine, and weapons. Emphasis on organization theory approaches. Comparisons with non-military and non-U.S. experience included.

**17.484 Comparative Grand Strategy and Military Doctrine** (Posen) [G]

A comparative study of the grand strategies and military doctrines of the great powers in Europe (Britain, France, Germany, and Russia) from the late 19th to the mid-20th century. Examines strategic developments in the years preceding and during World Wars I and II. What factors have exerted the greatest influence on national strategies? How may the quality of a grand strategy be judged? What consequences seem to follow from grand strategies of different types? Open to undergraduates with permission of instructor.

## DACS - AFFILIATED DEGREE RECIPIENTS, 1995/1996

**OWEN R. COTE**  
PhD in Political Science, February 1996

**The Politics of Innovative Military Doctrine:  
the U.S. Navy and Fleet Ballistic Missiles**  
*Thesis Committee:* Harvey Sapolsky (Chair), Steve Miller  
(Harvard), Barry Posen

**TREVOR THRALL**  
PhD in Political Science, February 1996

**U.S. Military Public Affairs Policy From Vietnam to the Gulf**  
*Thesis Committee:* Harvey Sapolsky (Chair), Stephen Van Evera,  
Russell Neuman (Tufts)

**KENNETH POLLACK**  
PhD in Political Science, February 1996

**The Influence of Arab Culture on Arab Military**  
*Thesis Committee:* Barry Posen (Chair), Ali Banuazizi (Boston  
College), Stephen Van Evera, Myron Weiner (fourth reader)

## GRADUATE STUDENTS 1995/1996

### PHD CANDIDATES — POST-GENERALS

Nicholas Beldecos	Princeton University <i>(Politics)</i>	Dana Isaacoff	Cornell University <i>(Labor Relations)</i>
Larry Brown	Howard Payne University <i>(Political Science/Economics)</i>		New School for Social Research <i>(Media)</i>
	University of New Mexico <i>(Management, Political Sci.)</i>	Jonathan Ladinsky	University of Chicago <i>(Political Science)</i>
David Burbach	Pomona College <i>(Government)</i>	Daniel Lindley	Tufts University <i>(Internat'l Relations/French)</i>
Dean Cheng	Princeton University <i>(Politics)</i>	Kevin O'Prey	Grinnell College <i>(International Relations)</i>
Jane Kellett Cramer	Oberlin College <i>(English)</i>	Daryl Press	University of Chicago <i>(Political Science)</i>
Eugene Gholz	MIT <i>(Political Sci./Materials Science and Engineering)</i>	Jeffrey Sands	Amherst College <i>(American Studies)</i>
Peter Goldstone	University of Chicago <i>(Political Science)</i>	Taylor Seybolt	Haverford College <i>(Political Science)</i>
Eric Heginbotham	Swarthmore College <i>(Political Science)</i>	Jeremy Shapiro	Harvard University <i>(Government)</i>

GRADUATE  
STUDENTS



MIT ROTC

*MIT Military Science: Officers of the Battalion, May 1869.*

<b>Robert Snyder</b>	United States Military Academy ( <i>Social Science</i> )	<b>Sharon Weiner</b>	Northeast Missouri State University ( <i>Political Sci./Economics</i> )
<b>Brian Taylor</b>	University of Iowa ( <i>Political Science</i> ) London School of Economics ( <i>Soviet Politics</i> )	<b>Richard Wilcox</b>	Lancaster University, England ( <i>Strategic Studies</i> ) The Citadel
<b>Christopher Twomey</b>	University of California, San Diego ( <i>Economics/Internat'l Affairs</i> )	<b>Robert Zirkle</b>	Georgetown University ( <i>International Studies</i> ) University of Illinois ( <i>Physics, Political Science</i> )
<b>Chikako Ueki</b>	Sophia University ( <i>Internat'l Relations/French</i> )	<b>PRE-GENERALS OR MASTER'S STUDENTS</b>	
<b>Benjamin Valentino</b>	Stanford University ( <i>Politics</i> )	<b>Yinan He</b>	Fudan University ( <i>International Relations</i> )
<b>James Walsh</b>	Brown University ( <i>Philosophy</i> )	<b>Kaori Inui</b>	Kyote University ( <i>Law</i> )
		<b>Jacob Zimmerman</b>	Princeton ( <i>Politics</i> )

**LI BIN**

*Visiting Scholar*

Li Bin received his Bachelor and Master degrees in physics from Beijing University. He began to work on technical issues in arms control in 1990 and got his PhD in 1993 from the Beijing Institute of Applied Physics and Computational Mathematics. Dr. Li is an assistant research fellow at IAPCM's Program for Science and National Security Studies. He was funded by the Postdoctoral Fellowship on International Peace and Security in a Changing World of the SSRC-MacArthur Foundation and took the first year of his fellowship at DACS. His study focus is the verification issue of a CTB and he is also interested in the issue of missile defenses.

**LIEUTENANT COLONEL ROBERT DURBIN, USA**

*Army Fellow*

LTC Robert E. Durbin graduated from the United States Military Academy and was commissioned a Second Lieutenant of Armor. LTC Durbin completed his graduate studies in engineering at the Pennsylvania State University and returned to West Point in 1982. He taught Thermodynamics as an Assistant Professor of Mechanical Engineering. He then served as a company and battalion-level Tactical Officer. In 1986, LTC Durbin returned to troops and was assigned to the division staff of the 1st Armored Division in Anabach, Germany. He served as Chief, G3 Exercises and Chief, G3 Training. In 1988, he became the Battalion Executive Officer of the 1st Battalion, 37th Armor. He then served as the Operations Officer of the VII (US) Corps' Canadian Army Trophy Team. After graduating from the Command and General Staff College at Fort Leavenworth, KS, LTC Durbin returned to the 2nd Armored Division and assumed the duties of the Executive Officer of the 1st (Tiger) Brigade after which he assumed command of 1-67 Armor.

**LIEUTENANT COLONEL LEO FLORICK, USAF**

*Air Force Fellow*

Lt. Col. Florick entered the Air Force in May 1975 as a Distinguished Graduate of the AFROTC program at the University of Nebraska-Omaha. He was assigned to the 90th Strategic Missile Wing, F.E. Warren AFB, WY, as a missile combat crew member for the Minuteman III Intercontinental Ballistic Missile weapons system, serving as both an Instructor and a Standardization-Evaluation crew member. Assigned to the 4315th Combat Crew Training Squadron from 1979-1982, Lt. Col. Florick served first as an instructor and later became the Chief of the Academic Training Section responsible for supporting initial crew member training for the Minuteman III Command Data Buffer weapons systems located at F.E. Warren AFB, Wyoming and Minot AFB, ND. He then reported as Force Structure Analyst for the Deputy Chief of Staff Plans at Headquarters, Strategic Air Command, Offutt AFB, Nebraska, after which he served as the Chief, Missile Operations Assignments at the Air Force Military Personnel Center, Randolph AFB, Texas. After graduation from the Armed Forces Staff College in Norfolk, VA, in 1989, he was assigned to the National Security Agency at Fort Meade, MD. He served as the Chief, Arms Control and Operations Section until 1993 when he was assigned to the Office of the Assistant to the Secretary of Defense for Atomic Energy as a Special Advisor.



**LISBETH GRONLUND***Visiting Scholar*

Lisbeth Gronlund is a Senior Staff Scientist at the Union of Concerned Scientists, a public interest research group based in Cambridge, MA. After receiving a PhD in theoretical physics from Cornell University in 1988, she made her first foray to DACS, spending two years as a postdoctoral fellow. She then became a senior visiting scholar in the Center for International Security Studies at the University of Maryland, College Park.

Dr. Gronlund's research has focused on technical aspects of arms control, and she has written on the issues of depressed-trajectory ballistic missiles, space-based and ground-based ballistic missile defenses, the proliferation of ballistic missiles, improved controls on fissile materials, and ballistic missile defenses.

**TIMUR KADYSHEV***Visiting Fellow*

Timur Kadyshev received his PhD in mathematics and physics from the Moscow Institute of Physics and Technology (MPTI) in 1991 and is now a Research Fellow at the Center for Arms Control, Energy and Environmental Studies and MPTI. His work has focused on resource allocation problems, and he has investigated defense policy issues from this point of view. Dr. Kadyshev has analyzed the related questions of how to best deploy reduced nuclear arsenals, what are the lowest levels which provide a stable strategic balance, and what are the safest ways to achieve greatly lower numbers of nuclear weapons. More recently, he has applied this approach in modeling of strategic anti-ballistic missile defenses, and has developed a model that can be used to analyze the required capabilities of defense system components in order to meet different military requirements. His current work includes a detailed study of the North Korean ballistic missile program being carried out with Dr. David Wright.

**ALLEN KAUFMAN***Visiting Scientist*

Dr. Allen Kaufman is Chair and Professor in the Department of Management, Whittemore School of Business, University of New Hampshire. He received his SM in political science from the Massachusetts Institute of Technology and a PhD in history from Rutgers University. Dr. Kaufman is author of *Managers to Owners: The Struggle for Corporate Control in American Democracy* as well as numerous other studies predominantly in business history. His research with the DACS Working Group on The Future of the Defense Industries focuses on supplier relations in the aerospace/defense industry.

**EUGENE MIASNIKOV***Post-Doctoral Fellow*

Eugene Miasnikov, an oceanographer, spent July and August at DACS under a grant from the W. Alton Jones Foundation to perform independent research in conjunction with the DACS Working Group on Technical Studies in Defense and Arms Control Policy. Dr. Miasnikov received his PhD degree in Physics from the Moscow Institute of Physics and Technology (MPTI) in 1988 and is a member of the MPTI Center for Arms Control, Energy and Environmental Studies, where he has been investigating the history and future of Russian sea-based strategies, and the prospects for START II and deeper cuts in nuclear forces.

**PAUL PODVIG**

*Post-Doctoral Fellow*

Paul Podvig, a laser physicist from Russia, is working with Professor Ted Postol on ballistic missile defense-related issues. A 1988 graduate of the Moscow Institute of Physics and Technology (MPTI), he has been an assistant professor in MPTI's General Physics Department since 1990. Dr. Podvig is a staff member of the MPTI Center for Arms Control, Energy and Environmental Studies, and has published a Russian translation of *Soviet Nuclear Weapons* (a publication of the Natural Resources Defense Council).

**LIEUTENANT COMMANDER DAVID RADI, USN**

*Navy Federal Executive Fellow*

Lt. Comdr. David A. Radi was appointed to the class of 1983 at the United States Naval Academy where he served as a Company Commander and graduated with distinction. Following graduation and commissioning, he attended the Armed Forces Intelligence Training Center Officer Course where he graduated first in his class. He was then assigned to Attack Squadron THIRTY-FOUR (VA 34) as the Intelligence Officer and made two extended deployments onboard USS AMERICA (CV 66). Lt. Comdr. Radi reported in 1986 to the Chief of Naval Operations Current Intelligence Division serving initially as an Intelligence Watch Officer and later as an Intelligence Briefer for the Secretary of the Navy and Chief of Naval Operations. In 1988, he was selected as the Naval Intelligence representative to the National Security Council Staff where he served as a Senior Duty Officer in the White House Situation Room. There he provided intelligence briefings to the President, Vice President, National Security Advisor and other senior White House staff. Returning to sea duty in 1991, Lt. Comdr. Radi was assigned as an Assistant Intelligence Officer, U.S. Second Fleet, where he was central to the planning and execution of major Fleet, NATO and joint forces exercises. In June 1993, he was selected as Flag Aide to Commander Second Fleet followed by an assignment as the Flag Aide to the Commander in Chief, U.S. Atlantic Fleet.

**LAURA REED**

*Visiting Scientist*

Laura Reed received her PhD in political science from the Massachusetts Institute of Technology in February 1995 and was an assistant professor at Wellesley College during the spring semester of 1995. Formerly a program officer of the Committee on International Security Studies (CISS) at the American Academy of Arts and Sciences, she has edited the CISS volumes including: *Lethal Commerce: The Global Trade in Small Arms and Light Weapons* (with Jeffrey Boutwell and Michael Klare), *Collective Responses to Regional Problems: The Case of Latin America and the Caribbean* (with Robert Pastor and Carl Kaysen), and *Emerging Norms of Justified Intervention* (with Carl Kaysen). Her current research examines the feasibility of a United Nations' military force.

**URI REYCHAV**

*Visiting Fellow*

Since 1989 Uri Reyhav has been a Senior Analyst at the Center for Military Analysis in RAFAEL, Israeli MOD's Armament Development Authority located in Haifa, Israel. He was previously RAFAEL's Chief Engineer for Systems Analysis, in the office of the Deputy Director for R&D. On sabbatical from RAFAEL from 1986-1989, Dr. Reyhav was a Visiting Scholar with the Department of Engineering Administration at The George Washington University conducting research on the reasons and the results of the nonexistence of

an economic “innovation function.” As an expert on missile control technologies, he spent his time at MIT working with the DACS Defense Technology Group.

**VISITORS**

**SANFORD WEINER**

*Visiting Scholar*

Sanford Weiner is a Visiting Scholar at the Center. Before coming to CIS, he was on the staff at the Energy Laboratory and the Center for Technology, Policy and Industrial Development. His research interests focus on the interplay of international and domestic public policy making in technical areas. With James Maxwell he conducted a study of the phase-out of CFCs because of concerns about their impact on the ozone layer. The study looked at the interaction of scientific groups, governments, and corporations in bringing about this shift. He is now working closely with Harvey Sapolsky on issues of the closing or conversion of former DOD bases and DOE production sites, and the environmental restorations that may be necessary at many of them. He has also collaborated with Professor Sapolsky on studies of state and federal health care reform.

**DAVID WRIGHT**

*Visiting Scholar*

David Wright received his PhD in theoretical condensed matter physics from Cornell University in 1983, and held physics research positions until 1988. He received an SSRC-MacArthur Fellowship in International Peace and Security to retrain in international security issues, and spent two years in the Center for Science and International Affairs at Harvard University. Thereafter he joined the staff of the Federation of American Scientists as a Senior Arms Control Analyst and has been a Senior Staff Scientist at the Union of Concerned Scientists. He is a member of the Social Science Research Council’s Committee on International Peace and Security. His recent research has focused on depressed-trajectory SLBMs, the proliferation of ballistic missiles with an emphasis on the North Korean missile program, improving international controls on fissile material, and missile defenses.

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